



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,103	12/04/2001	Shai Abramson	FRND 110	3555

7590 08/18/2004  
Pollsinelli, Shalton & Welte, P.C.  
c/o Jerome R. Smith  
700 W. 47th Street  
Suite 1000  
Kansas City, MO 64112-1802

EXAMINER

MARC, MCDIEUNEL

ART UNIT PAPER NUMBER

3661

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/007,103

**Applicant(s)**

ABRAMSON ET AL.

**Examiner**

McDieunel Marc

**Art Unit**

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 16-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 16-24 is/are rejected.
- 7) ☒ Claim(s) 10 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/22/04 m.v.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-10 and 16-25 have been elected and presented for examination.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 16-24 are rejected under 35 U.S.C. 102(e) as being anticipated by **Peless *et al.*** (U.S. Pat. No. 6,615,108).

As per claims 16 and 22, Peless *et al.* teaches a method for area coverage by an autonomous machine (see fig. 2A) comprising: scanning a first portion of said area in accordance with at least one scanning pattern (see fig. 2A, element 54 being considered as first portion); analyzing said first portion for an opening to a second portion of said area (see fig. 2A, element 56 being considered as the second portion and col. 3, lines 42-53 *et seq.*; and moving along a path at least proximate to the periphery of said first portion to and through said opening to said second portion of said area (see fig. 2A and col. 3, lines 49-53 *et seq.*). with respect to claim 22, Peless *et al.* teaches a method for area coverage by an autonomous machine (see fig. 2A)

comprising: scanning a portion of said area in accordance with at least one scanning pattern, from a first point (see fig. 2A, element 54 being considered as first portion); moving along a path at least proximate the periphery of said scanned portion to a second point (see fig. 2A and col. 3, lines 49-53 *et seq.*), said second point at a different location than said first point (see fig. 2A as noted above); and scanning a portion of said area in accordance with at least one scanning pattern, from said second point (see fig. 2A and col. 3, lines 49-53 *et seq.*).

As per claim 17, Peless et al. teaches the limitation of scanning said second portion in accordance with at least one scanning pattern (see fig. 6), note that the second portion of the pattern the same straight parallel line pattern.

As per claim 18, Peless et al. teaches a method comprising: indicating the end of said at least one scanning pattern for said first portion of said area when lateral advancement of said apparatus in accordance with said at least one scanning pattern is no longer possible (see col. 3, lines 59 – to col. 4, line – 5 and fig. 2A), the dotted circle being considered a boundary where pattern is no longer possible.

As per claim 19, Peless et al. teaches a method, wherein said at least one scanning pattern is executed substantially free of repetition (see fig. 6), as noted above the circle are being considered as free of repetition.

As per claim 20, Peless et al. teaches a method, wherein said at least one

scanning pattern is executed substantially free of repetition (see fig. 6), as noted above the circle are being considered as free of repetition.

As per claim 21, Peless et al. teaches a method, wherein said movement at least proximate to said periphery of said first portion includes a contour movement see fig. 6), as noted above the contour being made around the edges of the boundaries.

As per claim 23, Peless et al. teaches a method, wherein said moving along said path includes moving a predetermined length (see col. 4, lines 40-45), as noted above, the boundaries provide predetermined length for the robot.

As per claim 24, Peless et al. teaches a method, wherein said moving along said path includes determining the length of said path dynamically (see col. 4, lines 40-45), as noted above that path of the boundaries provide predetermined length for the robot.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pesess *et al.*** in view of Jones *et al.* (U.S. Pat. No. **6,690,134**).

As per claims 1 and 7, Peless *et al.* teaches substantially a system and an associated method having the limitation of providing at least one scanning pattern for a first portion of said area (see fig. 2A and col. 3, lines 49-51); analyze said first portion for an opening to a second portion of said area (see fig. 2A and col. 3, lines 52-53); and signal said drive system to move along a path at least proximate the periphery of said first portion to and through said opening to said second portion of said area (see fig. 2A and col. 3, lines 49-53 *et seq.*). with respect to claim 7, Peless *et al.* also teaches substantially a system and an associated method having the limitation of providing at least one scanning pattern for a portion of said area (see fig. 2A and col. 3, lines 49-51) from a first point (see fig. 2A, particularly element 42 being considered as first point); signal said drive system to move along a path at least proximate the periphery of the scanned portion to a second point (see fig. 2A and col. 3, lines 49-53 *et seq.*), note that

the second point being considered as the end point of element 42 of figure 2A, said second point at a different location than said first point (see fig. 2A as noted above); and provide at least one scanning pattern for a portion of said area from said second point (see fig. 2A, elements 42 and 56). Peless *et al.* does not explicitly teach an apparatus for autonomous operation over an area comprising: a drive system; and a controller in communication with said drive system, said controller including a processor programmed.

However, Jones *et al.* teaches a vacuum robot having an apparatus for autonomous operation over an area (see fig. 6) comprising: a drive system; and a controller in communication with said drive system (see fig. 6, particularly the processor, which being considered as controller), said controller including a processor programmed (see fig. 6, particularly the processor).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot type of Peless *et al.* with the robot type of Jones *et al.* because this modification would have increased the robot of Peless *et al.* so that when the robot encounters one of the boundary markers then the robot moves about the area to covered, thereby improving the efficiency the reliability of the robotic vacuum cleaner system.

As per claim 2, Peless *et al.* teaches an apparatus, wherein said processor is additionally programmed to provide at least one scanning pattern for said second portion of said area (see col. 3, lines 59 – to col. 4, line – 5).

As per claim 3, Peless *et al.* teaches an apparatus, wherein said processor is additionally programmed to indicate the end of said at least one scanning pattern for

said first portion of said area when lateral advancement of said apparatus in accordance with said at least one scanning pattern is no longer possible (see col. 3, lines 59 – to col. 4, line – 5 and fig. 2A), the dotted circle being considered a boundary where pattern is no longer possible.

As per claim 4, Peless et al. teaches an apparatus, wherein said at least one scanning pattern provided is substantially free of repetition (see fig. 6), note that the circle are being considered as free of repetition.

As per claim 5, Peless et al. teaches an apparatus, wherein said at least one scanning pattern provided is substantially free of repetition (see fig. 6), note that the circle are being considered as free of repetition.

As per claim 6, Peless et al. teaches an apparatus, wherein said movement at least proximate to said periphery of said first portion includes a contour movement (see fig. 6), note that the contour being made around the edges of the boundaries.

As per claim 8, Peless et al. teaches an apparatus, wherein said processor is programmed such that said path includes a predetermined length (see col. 4, lines 40-45), note that path of the boundaries provide predetermined length for the robot.

As per claim 9, Peless et al. teaches an apparatus, wherein said processor is additionally programmed to dynamically determine the length of said path (see col. 4,



lines 40-45), note that path of the boundaries provide predetermined length for the robot.

***Allowable Subject Matter***

7. Claims 10 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or fairly suggest with respect to claim 10, the apparatus of claim 9, wherein said length of said path (D) determined dynamically is in accordance with the formula:

$D = [K_1 \cdot d][\sum L_i / \max \{L_i\}] + [K_2 \cdot \max \{L_i\}]$  are the lengths of each straight line portion of the scanned pattern;  $K_1$  and  $K_2$  can be, for example,  $K_1 = 0.8$ ,  $K_2 = 1$ , where  $L_i$  are measured in meters; and  $d$  is the diameter of the apparatus expressed in meters.

With respect to 25, wherein said determining the length of said path (D) dynamically is in accordance with the formula:

$$D = [K_1 \cdot d][\sum L_i / \max \{L_i\}] + [K_2 \cdot \max \{L_i\}]$$


where,

$L_i$  is the series  $L_1$  to  $L_n$ , and  $L_1$  to  $L_n$  are the lengths of each straight line portion of the scanned pattern;  $K_1$  and  $K_2$  can be, for example,  $K_1 = 0.8$ ,  $K_2 = 1$ , where  $L_i$  are measured in meters; and  $d$  is the diameter of the apparatus, expressed in meters.

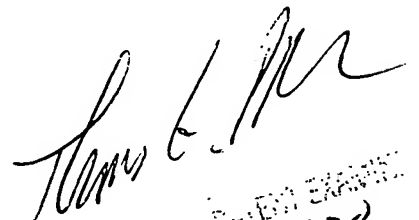
Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (703) 305-4478. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
McDieunel Marc  
Thursday, June 08, 2004

MM/

  
THOMAS BLACK EXAMINER  
GROUP 3600